

5187

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Form 504 Ed. June, 1928	
DEPARTMENT OF COMMERCE U. S. COAST AND GEODETIC SURVEY R. S. Patton <i>Director</i>	
State: <u>ALASKA</u>	
DESCRIPTIVE REPORT	
Topographic Hydrographic	Sheet No. 22 5187
LOCALITY	
Kenai Peninsula,	
Rocky Bay, East Chugach Island, &	
Vicinity.	
19 31	
CHIEF OF PARTY	
H. B. Campbell	

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

REG. NO. 5187

HYDROGRAPHIC TITLE SHEET

The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. 22

REGISTER NO. 5187

State ~~Territory of~~ Alaska

General locality Kenai Peninsula

Locality Rocky Bay, East Chugach Island and Vicinity.

Scale 1:20,000 Date of survey June 27 - Oct. 3, 1931

Vessel Tender WESTDAHL, Port & Starboard Launches.

Chief of Party H. B. Campbell

Surveyed by L. D. Graham, H. A. Kero, H. F. Garber

Protracted by M. E. Wennermark

Soundings penciled by M. E. Wennermark

Soundings in fathoms ~~xxxx~~

Plane of reference M.L.L.W.

Subdivision of wire dragged areas by _____

Inked by S. F. Sept. 1932

Verified by J. F.

Instructions dated March 21, 1930; April 10, 1931

Remarks: Project #57.

DESCRIPTIVE REPORT

to

Accompany Hydrographic Sheet No. 22

Scale 1:20,000

Rocky Bay, East Chugach Island

and Vicinity.

Southwest Alaska

Project No. 57.

H. B. Campbell, H. & G. Engineer

Chief of Party

Hydrographers:

L. D. Graham, H. & G. Engineer

Tender WESTDAHL

H. A. Karo, " " " "

Port Motor Sailer

H. F. Garber, Jr. H. & G. Engineer

Starboard Motor Sailer

Instructions dated March 21, 1930, and April 10, 1931.

Date of Survey: June 27, 1931 - October 3, 1931.

LIMITS:

This sheet connects with sheets, field Nos. 21 and 41 and H-3802
5186 5191
5192
on the east, by sheet field No. 42 on the south, and sheets H-3802 and
H-3803 on the west. It includes Windy, Rocky and Chugach Bays, and the
waters adjacent to East Chugach Island.

Portions of Sheet H-3802 were resurveyed in greater detail.

SURVEY METHODS:

Around East Chugach Island, outside the twenty fathom curve, soundings were taken with the fathometer, Type 412-H. The remainder of the area was covered by vertical casts or hand lead. The deeper portions of the bays were sounded by the Tender WESTDAHL, taking vertical casts. The fathometer was kept running and was a great help in locating shoals between the vertical casts. The fathometer soundings were not recorded, but all shoals located in this manner were developed by vertical casts or hand lead. From later experience we reached the conclusion that the best way to develop an area like this, (unless wire-drag is used), is to do it entirely with fathometer and then possibly develop the tops of the shoals by other methods. The chances of getting the shoalest points are much better with the fathometer than with the lead.

The control was excellent, there being over 70 points on the sheet located by triangulation. (See comparison with previous survey).

DISCREPANCIES:

In the area north of East Chugach Island some of the soundings do not agree well with the old work. This is believed to be entirely due to the extremely irregular bottom and to the shift in the signals on East Chugach Island. (See comparison with previous survey).

We did not check the 16 fathom sounding in Latitude $59^{\circ} - 10.7'$, Longitude $151^{\circ} - 26.4'$. We found 70 fathoms here, and 28 fathoms a quarter mile to the northwest. We did not return to the field again for further development of this spot, but our conclusions were that this was probably a ^{0*}16 sounding, of which there are several in this vicinity.

**This is a tube sounding - not no bottom sounding
E.P.*

DANGERS:

Owing to the rocky and irregular bottom all shoals and kelp patches should carefully be avoided, as there is always a possibility of a pinnacle rock of less depth than shown. This is particularly true of the entrances to Rocky and Windy Bays. Soundings are of little assistance in locating one's position.

All rocks are clearly shown on the smooth sheet, but are too numerous to give in detail in this report. A few that are nearest ship channels are mentioned below:

One half mile east of the northeast point of E. Chugach Island is a rock ^{bar 3' MLLW} awash at low water. There is another rock awash at low water two tenths of a mile southwest of the southern tip of the same island. Near the northern extremity of the shoal extending northward from E. Chugach Island and 1-1/4 miles offshore and at the edge of the channel is a rocky patch with 4-2/6 fathoms, marked by kelp. The old survey shows 6-1/4 fathoms nearby.

In Rocky Bay there is a rock ^{awash $\frac{2}{3}$ tide} bare at half tide 1-3/4 miles due east of the point that forms the southern side of Windy Bay. It is more than a mile from the nearest island and is surrounded by deep water.

ANCHORAGES:

An excellent anchorage in all kinds of weather for small vessels up to about 100 feet in length is near the head of Picnic Harbor, in 10 fathoms of water. The swinging room is somewhat limited, a scant 300 meters wide, but there are good depths close to both shores. The bottom is firm mud with excellent holding qualities. There is no swell, and little wind except in southeasterly gales. The only shoal noted is a sand spit that makes out from the eastern shore of the harbor near the middle at Signal BORE. This extends nearly one third of the way across the channel.

There is a good anchorage for larger vessels in 10 fathoms, mud bottom, about one mile from the head of Windy Bay. Westerly winds are apt to be troublesome as they blow through the pass at the head of the bay with great force at times. The channel into the bay is narrow and should be approached with caution. The best water is 1/4 mile from the south shore as one rounds the point into the bay. The north part of the bay is full of rocks and shoals and should be given a wide berth.

Both these anchorages were frequently used by the WESTDAHL during the field season. Picnic Harbor was greatly preferred in heavy weather.

RANGE INTO ROCKY BAY:

In approaching Rocky Bay from the westward there is a range used by local fishermen. This is the small grassy island on which Station CENT is located and the highest peak in the vicinity bearing 33° true from the island. Use the shoulder of the peak slightly to the left of the highest point for the rear range. When headed in on this range the house on the northwest end of East Chugach Island is directly astern. This range clears all rocks showing at low water by a wide margin, but passes within 125 to 150 meters of four rocky patches of from 6-1/2 to 7-1/2 fathoms. During the summer kelp showed on these points, and they could easily be avoided.

CURRENTS:

Tidal currents with velocities of three to four knots at times are encountered between E. Chugach Island and the mainland, between E. Chugach Island and Pearl Island, and around the southern tip of E. Chugach Island. Heavy tide rips dangerous to small boats are frequently encountered at these points.

COMPARISON WITH PREVIOUS SURVEYS:

The topography of Chugach Island and Bay had been done in 1915, Sheet No. 3553. As many of the old points as could be recognized were recovered and used as hydrographic signals. They were as follows:

Chugach Bay:

Est, Chug, Tom, Aid, Bug, Cas, Sing, Check, Eg, Bog, Lag.

Chugach Island:

Beach, Cap, Bot, Bow, Vein, Jag, Big, Pir, Net, Sharp, Der, Ho, Push, Rex, Por, Stop, Hard, Muff, White, Coal, Tip, Fig, Sun, Pon, Hat, Rub, Wye, Wat.

At first we expected to use these topographic points for our hydrography, but discovered rather large discrepancies, especially on the northeast end of Chugach Island. We, therefore, cut in as many of these points as we could while doing triangulation in this vicinity. The old shore line was then adjusted to these triangulation points and traced onto the hydrographic sheet. The shore line of Chugach Bay was found to be practically correct, as was also the south and west shores of Chugach Island. Rather large errors were noted along the north and east shores of Chugach Island, the largest being around the northeast end. A few of the largest errors in this vicinity: Bot, 68 meters; Big, 80 meters; Pir, 78 meters; Off-lying rock 1/2 mile off point, 66 meters. The rock in Chugach Bay, Lat. $59^{\circ} - 11.7'$, Long. $151^{\circ} - 28.6'$ is 43 meters SSE of old topographic location.

Respectfully submitted,

(sdy.) L. D. Graham.

L. D. Graham,
H. & G. Engr., C. & G. Survey.

approved & forwarded
H. Campbell
comdg. Division

STATISTICS.

for Sheet, Field No. 22.

Date 1931	Letter	Volume	Positions	Wire	Soundings H.L.	Echo	Statute mi. sdg. lines.
				<u>Tender WESTDAHL</u>			
June 27	a	1	14	- -	- -	97	5.7
" 30	b	1	245	237	22	- -	26.0
July 1	c	1 & 2	194	223	19	25	16.8
" 7	d	2	185	149	100	- -	21.1
" 14	e	2 & 3	116	116	- -	- -	12.2
" 21	f	3	215	217	- -	- -	20.8
" 22	g	3 & 4	280	246	- -	183	34.7
" 23	h	4	284	254	78	- -	27.0
" 24	j	5	40	40	- -	- -	2.5
" 28	k	5	259	264	- -	- -	14.0
" 29	l	5 & 6	227	123	- -	578	48.3
" 30	m	6	105	83	9	86	13.4
Aug. 10	n	6 & 7	204	359	- -	- -	30.3
" 11	p	7	248	122	85	402	47.6
" 12	q	7 & 8	152	254	- -	- -	22.6
" 13	r	8	95	62	- -	203	16.9
" 14	s	8	130	223	- -	- -	13.5
" 18	t	8 & 9	180	48	- -	521	37.2
Oct. 3	u	9	35	46	- -	- -	3.6

Totals			3208	3066	313	2095	414.2
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Port Motor Sailer

July 13	a	10	154	- -	540	- -	22.0
" 14	b	10	192	- -	578	- -	23.0
" 15	c	10 & 11	190	147	294	- -	19.7

Starboard Motor Sailer

Sept. 12	a	12	56	35	133	- -	8.5
" 16	b	12	131	186	202	- -	20.6
" 18	c	12	59	69	66	- -	8.0
" 19	d	12 & 13	129	238	79	- -	21.0
" 22	e	13	158	214	192	- -	24.5
" 23	f	13	150	169	276	- -	25.6
" 25	g	14	105	111	204	- -	17.2
" 26	h	14	71	144	2	- -	8.6
" 30	j	14	48	99	14	- -	6.0

Totals			4651	4478	2893	2095	618.9
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APPROVAL OF CHIEF OF PARTY

Sheet No. 22 and accompanying records have been inspected and approved by me. Both the field work and office work were done under my supervision. No further hydrography is considered necessary in the area covered.



H. B. Campbell, H. & G. E.,
Chief of Party, C. & G. S.

FATHOMETER CORRECTIONS

HYDROGRAPHIC SHEET Project #57

In obtaining fathometer corrections for this sheet all comparisons were listed and by inspection corrections were selected which seemed to be the average during the time the soundings were taken, allowance being made for uneven bottom. Corrections for salinity and temperature were not made as the corrections would be negligible in these depths. A mean correction cannot be taken for a whole day as the zero of the fathometer shifts during the days work.

FATHOMETER CORRECTIONS

HYDROGRAPHIC SHEET #22

Project #57.

June 6, 1931, "a" day.

Pos.	V.C.	Fath.	Corr.
	39.2	37	2.2

Add 2.0 fathoms.

No fathometer until July 22, 1931.

July 22, 1931.

Pos.	V.C.	Fath.	Corr.
192 g	32.7	33	-0.3
193 g	33.5	33	0.5
194 g	33.5	34	-0.5
195 g	32.7	33	-0.3
196 g	28.5	29	-0.5
197 g	30.0	30	0
198 g	30.5	30	0.5
199 g	29.0	28.5	0.5
200 g	29.9	29.0	0.9
216 g	27.4	26.0	1.4
237 g	25.0	23.3	1.7
239 g	26.2	24.0	2.2
240 g	28.0	26.0	2.0
241 g	28.5	26.0	2.5
242 g	29.3	27.0	2.3
243 g	28.5	26.5	2.0

Positions 200 - 216 add 1.0 fath.
 " 217 - 237 " 1.5 "

July 29, 1931.

Pos.	V.C.	Fath.	Corr.
92 1	39.7	38	1.7
95 1	33.6	35	-1.4
109 1	28.7	29.0	-0.3
	28.7	29.0	-0.3
110 1	20.5	21.0	-0.5
111 1	29.0	29.0	0.0
122 1	37.5	38.0	-0.5
132 1	24.0	25.0	-1.0
	23.9	24.5	-0.6
140 1	29.3	29.0	0.3
145 1	36.0	35.8	0.2
152 1	20.2	19.5	0.7
161 1	32.5	32.5	0.0
176 1	35.0	35.0	0.0
188 1	30.1	29.5	0.6
	38.2	38.0	0.2
193 1	38.4	38.0	0.4
210 1	28.4	28.0	0.4
227 1	24.6	24.0	0.6

Positions 95 to 132	Subtract	0.5 Fath.
132 to 140	Zero	
140 to 157	Add	0.5 Fath.
157 to 182	Zero	
182 to 227	Add	0.5 Fath.

July 30, 1931.

Pos.	V.C.	Fath.	Corr.
85 m	20.5	19.5	1.0
86 m	20.4	19.5	0.9
95 m	24.2	23.0	1.2
105 m	29.8	28.5	1.3

Positions 85 m to 105 m Add 1.0. fath.

August 11, 1931.

Pos.	V.C.	Fath.	Corr.
	18.9	18.0	0.9
2 p	16.8	16.0	0.8
3 p	23.7	22.0	1.7
20 p	20.8	17.0	3.8
24 p	26.2	21.0	5.2
25 p	25.1	21.0	5.1
26 p	23.0	18.0	5.0
35 p	20.6	17.0	3.6
36 p	25.3	20.0	5.3
58 p	24.9	19.0	5.9
131 p	18.5	15.0	3.5
146 p	13.4	8.0	5.4
155 p	20.2	15.0	5.2
161 p	26.9	22.0	4.9
169 p	21.5	17.0	4.5
172 p	26.9	22.0	4.9
183 p	24.6	18.5	6.1
	24.7	19.0	5.7
188 p	20.4	16.0	4.4
198 p	21.0	16.5	4.5
200 p	18.2	14.0	4.2
201 p	19.4	14.2	5.2
230 p	17.9	12.5	5.4
236 p	25.0	20.0	5.0
246 p	23.2	18.0	5.2
247 p	23.4	18.0	5.4
248 p	14.0	9.0	5.0

Positions 1 - 6	Add 1.0	Fath.
" 6 - 8	" 1.5	"
" 8 - 12	" 2.0	"
" 12 - 14	" 2.5	"
" 14 - 20	" 3.0	"
" 20 - 22	" 4.0	"
" 22 - 248	" 5.0	"

August 17, 1931.

Pos.	V.C.	Fath.	Corr.
42 r	26.8	25.0	1.8
45 r	26.1	24.0	2.1
66 r	21.3	20.0	1.3
77 r	19.4	18.0	1.4
95 r	22.2	21.0	1.2

Positions 42 r to 45 r Add 2.0 Fath.

" 45 r to 77 r " 1.5 "

" 77 r to 95 r " 1.0 "

August 18, 1931.

Pos.	V.C.	Fath.	Corr.
28 t	26.5	25.0	1.5
42 t	21.5	20.0	1.5
43 t	22.9	20.5	2.4
49 t	23.5	22.0	1.5
58 t	25.4	24.0	1.4
65 t	30.2	28.5	1.7
79 t	34.0	32.5	1.5
93 t	27.2	25.5	1.7
107 t	27.8	26.0	1.8
114 t	31.8	29.5	2.3
129 t	19.2	18.0	1.2
131 t	24.3	23.0	1.3
132 t	25.0	23.5	1.5
136 t	19.0	18.0	1.0
137 t	17.7	16.0	1.7
138 t	20.7	18.0	2.7
	21.5	20.0	1.5
139 t	22.7	21.5	1.2
	24.5	22.5	2.0
149 t	33.0	31.5	1.5
169 t	33.2	31.5	1.7
170 t	33.6	31.5	2.1
180 t	27.7	26.0	1.7

Positions	28 to 93	Add	1.5	Fath.
"	93 to 120	"	2.0	"
"	120 to 139	"	1.5	"
"	139 to 180	"	2.0	"

July 22, 1932

Division of Hydrography and Topography:

✓ Division of Charts:

Tide Reducers are approved in
14 volumes of sounding records for

HYDROGRAPHIC SHEET 5187

Locality Rocky Bay to East Chugach Island and vicinity, Southwest Alaska

Chief of Party: H. B. Campbell in 1931

Plane of reference is mean lower low water, reading

5.4 ft. on tide staff at Port Chatham

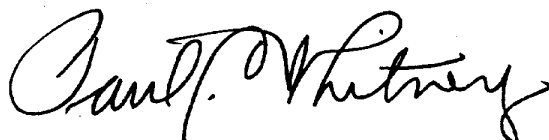
16.8 ft. below B. M. 1

6.8 ft. on tide staff at Picnic Harbor, reading

22.4 ft. below B.M. 1

Condition of records satisfactory except as checked below:

1. Locality and sublocality of survey omitted.
2. Month and day of month omitted.
3. Time meridian not given at beginning of day's work.
4. Time (whether A.M. or P.M.) not given at beginning of day's work.
5. Soundings (whether in feet or fathoms) not clearly shown in record.
6. Leadline correction entered in wrong column.
7. Field reductions entered in "Office" column.
8. Location of tide gauge not given at beginning of day's work.
9. Leadline corrections not clearly stated.
10. Kind of sounding tube used not stated.
11. Sounding tube No. entered in column of "Soundings" instead of "Remarks".
12. Legibility of record could be improved.
13. Remarks.



Chief, Division of Tides and Currents.

Field Records Section (Charts)

HYDROGRAPHIC SHEET No. *5187*

The following statistics will be submitted with the
cartographer's report on the sheet:

Number of positions on sheet	<i>4651</i>
Number of positions checked	<i>578</i>
Number of positions revised	<i>10</i>
Number of soundings recorded	<i>9466</i>
Number of soundings revised	<i>167</i>
Number of signals erroneously plotted or transferred	<i>None</i>

Date: *Oct 1932*
Cartographer: *John Fleming*

Field Records Section

Report on H-5187 - Surveyed in 1932
Rocky Bay to E. Chugach I. and Vicinity
Hand lead, Sounding Machine Eathometer
Instructions dated March 21-1930, April 10-1931

Vessel-Tender Westdahl, Port & Starboard Launches.

Chief of party - H. B. Campbell

Surveyed by L. D. Graham, H. A. Karo, H. F. Garber.

Protracted by M. E. Wennermark.

Soundings by M. E. W.

Verified and inked by J. Fleming

- (1) The records were complete but the volumes covering the later part of the work lacked notations regarding hydrographic features close to the survey vessel at sounding time and undoubtedly visible according to the tide stage.
- (2) The plan, character and extent of the survey, satisfy both general and specific instructions, but superficially there appears to be no reason for

not developing the area in $59^{\circ} 09'$ to $11.5'$ in view of the fact that it was found necessary to develop spots in the area.

- (3) The sounding line crossings are satisfactory
- (4) The depth curves can be completely drawn except the 50 fm curve in approx $59^{\circ} 10'$ which must be taken from H. 3802 at that latitude.
- (5) The field protracting was excellent but failure to plot fractional fathoms in accordance with instructions (page 19 of the manual) made revision of a large number of soundings necessary.
- (6) The application of an erroneous tide reducer in the field caused the Div. of Tides to apply a correction to the recorded values which made revision of a considerable number of soundings necessary.

(7) Junction with contemporary surveys.

Junction with H-5186 on the East is not considered satisfactory as there is an undeveloped gap in approx $59^{\circ} 10'$ with two 16 fm shoal indications which appear in one instance to be unsatisfactorily investigated and in another to have been overlooked, in $59^{\circ} 10.75'$ and $59^{\circ} 10.05'$ respectively. H. 5191 is in good agreement but H. 5192 was incompletely verified at this writing.

H 5188 joins on the S.W. in $59^{\circ} 05'$ but does not join west of E. Chugach Id. where there is a large area undeveloped during the operations of which this is a part.

(8) Comparison with previous surveys

Comparison with 3802 shows what is thought to be good general agreement

- Comparison with H. 3802 - Cont. 3
- (8) In addition to the two 16 fm sdgs given under (7) there is another in $59^{\circ} - 11.4$ which is verified by a 10 fm sounding in the present survey.

(The position of the 16 fm sdgs described in the foregoing have been verified from the old records.)

(9) Comparison with H. 3803

There appears to be good agreement between these two sheets; but the $6\frac{1}{2}$ fms in $59^{\circ} - 09.25$ should receive attention.

In $59^{\circ} - 09'$ the present survey was incomplete and it was decided to supplement the work with soundings from H. 3803.

Owing to a relocation of control (see note on ^{Top} # 3553) direct transfer could not be made and in order to accomplish the desired result, the old control points governing the soundings to be used, were temporarily relocated on H. 5187 by reference to definite identifiable points or features common to both sheets, at, or adjacent to the given control points, and the positions and soundings replotted directly.

The results appeared to be entirely satisfactory.

The 19 fm sdg. $59^{\circ} - 10.75$ which are machine sdgs, $151 - 35.5$ were checked on H. 3802 and replotted on H. 5187 in the manner described above.

The $8\frac{3}{4}$ fms in $59^{\circ} - 09.8$ (which is overlap from # 3802) is not confirmed in this survey, but is indicated by several 11 fm. sdgs. These two sdgs have been transferred.

(10) Comparison with H. 3805

A 20 fm tube sdg. in $59^{\circ} - 04.75$ on H. 3805 is slightly indicated by a 25 fm sdg at that point in this survey. The pos. of that sdg has been verified from the record.

(11) Comparison with T-3553

Page 5 D.R. of H.5187 says in part "The shoreline in Chugach Bay is practically correct." The relation between the topographic features on T-3553 does not appear to be correct on the basis of the statement regarding the relocation of rocks - note bottom of page 5 D.R. Note also the rock awash 200 m S.W. of Δ Chick at the head of Chugach Bay. Other differences are noted which require that attention be directed to the Note in red on T.3553 relative to the relocation of control and adjustment of shoreline and rocks.

(12) Comparison with T. 4663

Except for a few unimportant rocks appearing on the Topo. sheet and not on the hydro. sheet there was good agreement. (These rocks were transferred).

The condition represented on the Boat sheet 150 m S.E from Δ Est (Lat. $59^{\circ}11.6$) is not supported by the Topo. sheet, or T. 3553.

The description of Δ Est (1931) indicates clearly that the Topo. representation is correct.

Therefore, the representation shown on T.3553 was followed.

- An 11th indication in $59^{\circ}-10'$ should merit closer examination.

Indications which may be developed when circumstances warrant, are as follows:-

14 fms $59^{\circ}-09'.6$
 $151^{\circ}-32'.4$

6 $\frac{4}{6}$ fms 59°-09'25 (from 3803) (noted under far 9. Page 3)
151-31.6

59°-10'0
11 frms 151°-28.7

11 fms $59^{\circ}-06'.9$
 $151^{\circ}-32'.8$

20 fms $59^{\circ}-04'.75$ (from 3805)
 $151-26:0$

20 fms 151-26.0 (from 3803)
The two 16 fm sdgs noted under par. 7-page 2, both from H. 3802.

~~16 hrs 59^h 10.75^m (from 3802)~~
~~151° 26' 4"~~

$7\frac{1}{4} fms$ $59^{\circ}-08'.95$
 $151^{\circ}-28'.75$

- (14) The survey is thought to be very good.

Respectfully submitted

Oct. 10, 1932 App. 9 AM J. Fleming
Schiraldi